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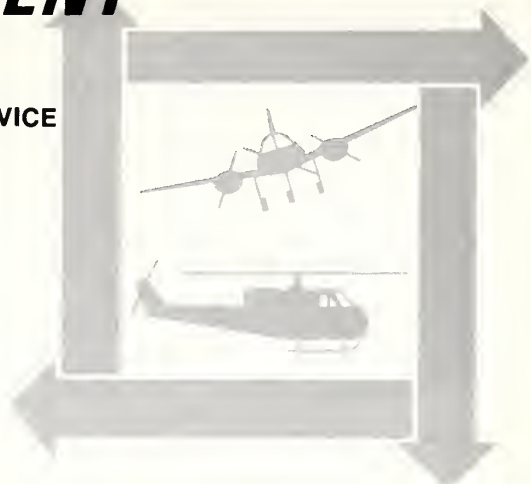
FIRE MANAGEMENT

FIRE TRAINING.

what?

why?

how?

FIRE 🔥 MANAGEMENT

An international quarterly periodical devoted to forest fire management

The background symbols on the cover represent National Fire Training Courses. Beginning in the left-hand corner and looking clockwise are symbols of: Fire Command, Aviation Management, Instructors, Fire Safety, and Fire Management.

Coordination of Agencies' Courses

Jim Abbott and
Mike Bowman

With the current long-awaited public clamor for professionalism in the stewardship of the public lands, boundary lines between agencies can no longer be an obstacle to taking fast, decisive, effective action to protect our vital natural resources. Because land managers are facing the most dynamic period in the history of U.S. natural resource management, boundary lines are not acceptable reasons for performing less effectively in planning and implementing programs common to different agencies.

Our approach to training must change to meet the demands of the current era. Training is often the key building-block in the formation of new ideas. It serves, as well, to introduce the proven methods of operation to new people. Training also provides a way to maintain skills in established areas of expertise.

A Common Approach

Development of training courses to meet management needs should have commonality nationwide across all agencies in order to attain a coordinated approach to performance, and to minimize the cost of developing and maintaining superior training packages.

In many areas, the objectives are the same for all agencies with similar responsibility. For example, all aspects of fire suppression assume basically the same goals once action begins on a particular fire. The organization is the same with the differences only in resources available and the working relationship with responsible land managers.

The need for coordination was recognized by national fire leaders in the Forest Service, the Department of Interior, and the States. As a result, the National Wildfire Coordinating Group has been formed. It is composed of Forest Service and Interior agencies with wildland fire responsibility.

Among the first acts of the group was the appointment of several working teams to deal with the problems of coordination in all aspects of fire management. Training was identified as a priority national problem under this concept, and a training team was chartered to take immediate action to formulate a national training program. The direction to the training team was challenging and straightforward: coordinated federal and State fire management training to improve the economy and effectiveness of wildland fire activities.

Long-range Programs

Under the leadership of Chairman C.W. Philpot of the Forest Service, Division of Forest Fire and Atmospheric Sciences Research, the training team is formulating long-range cooperative programs in fire management training. The States are currently represented

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National Training Course Instructors Certificate Symbol

through the Forest Service State and Private Forestry Program and State Representative, Bill Martini from Wisconsin. The team is further chartered to function as a working group which will appoint appropriate sub-teams to work on specific problems and tasks.

In pinpointing important tasks, at the first workshop in May 1974, the training team agreed to:

• Develop an automated fire training information system which would be available for use by all interested agencies.

• Describe the tasks and positions requiring fire management training and the need for positions among all agencies.

• Work toward interagency adoption of a standard fire qualifications system.

• Jointly sponsor major national fire training efforts.

• Sponsor a Fire Training Officer's meeting next winter.

In addition to accomplishing specific tasks, it became obvious that a broad look at the total fire

NATIONAL FIRE MANAGEMENT TRAINING SYSTEM
1974

ANALYSIS OF TRAINING NEEDS

USDI   BLM   BIA
            NPS
            BSF&W

USDA
    F.S.

STATE ORGANIZATIONS

CANADA

MEXICO

CURRICULUM DEVELOPMENT

COURSE DEVELOPMENT

COURSE PRESENTATION

PREFORMANCE EVALUATIONS

CURRICULUM EVALUATION

INTERNATIONAL TRAINING

NATIONAL TRAINING

REGIONAL TRAINING

LOCAL INTERAGENCY TRAINING

LOCAL AGENCY TRAINING

PROGRAM EVAL. SYSTEM

INDIVIDUAL PERF. EVAL. SYSTEM

MULTI. YR. CENTRALIZED ADP CONTROL SYSTEM

AGENCY DEVELOPMENT ASSIGNMENT

MULTI. YR. CENTRALIZED ADP-CONTROL SYSTEM

CENTRALIZED-MATERIAL ACQ. SYSTEM

⑤ PROGRAM NEEDS
    A. PRESENT DEMANDS
    B. FUTURE DEMANDS

④ EXISTING TRAINING PROGRAM ANALYSIS
    A. CURRICULUM ANALYSIS
    B. PROGRAM EFFICIENCY
    C. FACILITY EVALUATION
    D. ORGANIZATIONAL ANALYSIS

③ STANDARDS OF PERFORMANCE
    A. NON-FIRE PERMANENTS
    B. FIRE MANAGEMENT SPEC.
    C. RESEARCH FIRE MANAGEMENT SPEC.
    D. TEMPORARY FIRE CONTROL AIDS

② HUMAN BEHAVIOR ANALYSIS
    A. WHO IS TO ACCOMPLISH JOB?
    B. BEHAVIORAL CHANGES

① PROGRAM ANALYSIS
    A. WHAT JOB NEEDS TO BE ACCOMPLISHED?

FIRE RESEARCH

FIRE MGT

FIRE SUPPRESSION

training program was necessary to provide a general coordinating framework. The intent is not to assure that everybody does everything the same way, but rather to provide an opportunity for people and agencies with common problems to share solutions. With this in mind, a model for a national fire training system was developed which can serve as a common bond for agencies seeking a solution for any training problem.

The model outlines the training process. Beginning with agency objectives and goals and ending with specific training efforts to meet a need.

The first five blocks are a breakdown of performance analysis requirements. During this analysis, each aspect of the present and future programs are carefully analyzed to determine the nature of the training problem. Often this step in analysis will show that training is not a solution to the problem at all. The classic example is, of course, attempting to train people who already know how to perform but simply cannot, under the existing conditions. (Accompanying articles in this issue discuss performance analysis in some depth.)

With the analysis of training needs as a basis, a curriculum for programs which benefit the fire management activities of all agencies can be designed.

National Curriculum

The development of the approved national curriculum will be coordinated by the National Wildfire Coordinating Group to insure that there is no duplication of effort and that a high quality product is constructed to meet the training needs of each agency. At present, two approaches to course development are being evaluated. One alternative would be to assign specific courses to individual agencies for development of course packages; the other would be to formulate interagency task forces to guide the development of standard course materials.

National Advanced Fire Command Symbol

National Advanced Fire Prevention Symbol

Symbol for National Fire Safety Training

Information availability is perhaps the most important link in the whole system. It is tremendously difficult for a single unit to be knowledgeable about all information available; the effort needed to search for and sort material is beyond most units. The solution lies with an accessible computer system.

A work team is currently developing a system which will provide all agencies access to fire training information and general reference material in fire science and technology. The training information will include lesson plans, course announcements, instructor biographies, film descriptions, and training manuals. The system, Firebase, when operational, will provide a source for information which has been beyond the reach of most field units.

Another phase of the National Training System is the coordination of course presentations in order to afford field units the opportunity to share instructors and training facilities. Training programs from the international to the local levels will be available to meet identified training needs. Included in these programs will be career-oriented continuing education programs and regional seminars to improve the professional base of the fire services.

Evaluation

In order to fully achieve the goal of cost-effective training and to maintain training which is responsive to management's needs, we must address the problem of an evaluation system which has a unified interagency approach. This is also a recognized input to the National Training System, and steps are being taken to establish a task force to seek a solution to this problem.

Cooperative efforts in national training programs began this fall.

National Advanced Fire Management Symbol

The initial National Interagency Fire Management Series will be:
● Advanced Fire Management—Nov. 1974.
● Fire Safety—Jan. 1975.
● Fire Command—Feb. 1975.

An atmosphere for partnership has been established by the National Wildfire Coordinating Group. The challenge is great, but the potential rewards are monumental in comparison. Tough jobs and self sacrifice are not new assignments to the fire services. To achieve our lofty goal all must contribute and become involved—from the national leadership to the fire fighter on the line. The call has been issued for all who are dedicated to the efficient management of our public lands to put aside individual interests in order to do our part in putting the Nation on the move once again.

Providing Support
National Fire Training Center

Harvey P. Gibson

The National Fire Training Center was established in February, 1967 at Marana Air Park, which is about 30 miles northwest of Tucson, Arizona.

The Center receives program direction from the office of the Chief Division of Fire and Aviation Management. Office space is leased on a year-round basis and classrooms are rented as needed when courses are being conducted. Living and cafeteria facilities for 150 people contribute to a live-in situation conducive to learning. Runway and other flight facilities at Marana provide on-the-spot opportunity for air operation training and maintenance facilities for those who fly directly to the training sessions.

The Center was established to provide support to Regional Fire Management training programs. This is done in several ways.

National Level Training Courses

Probably the best known activity is the designing and conducting of management level courses in all fire related activities. The transition from Fire Control to Fire Management has been reflected in the broadening of the program. Subject material now included in national courses covers such areas as fire ecology, specific management skills such as performance evaluation, and the application of a safety philosophy.

These courses are now being designed and conducted in cooperation with other Federal and State land management agencies since

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the skills required by the various agencies in fire management activities are the same, regardless of their management philosophies.

We are increasingly using the services of nationally recognized experts in various fields, such as Joe Harless in administrative management, and Dr. Vernon Gross in air safety.

Researchers in the various natural resource management areas have contributed considerably to the knowledge gained by fire managers at national courses. The responsibility of managing fire to accomplish specific goals in the several resource functional areas has made it necessary for the fireman to broaden his knowledge considerably beyond the fire control area.

Training Tools

Where intermediate and basic

Training Aids

Training guides, lesson plans, program texts, and other training aids are available to aid training efforts in various fire subjects. These aids vary from rather simple, brief, self-study courses to complex lesson outlines with visual aids. The following programs are currently available:

10 Standard Firefighting orders—TT-8(5100)
Audience: Beginning Firemen
Format: Program text for self-study
Description: This text is a review of the 10 standard firefighting orders in a self-guided program text format. The user will understand orders and gain an awareness of their importance.

Introduction to the Fundamentals of Fire Behavior—TT-9(5100)
Audience: Beginning Firemen
Format: Program text for self-study
Description: This text will orient the unfamiliar with the basics of fire behavior. And understanding of the basic fire behavior forces and the related safety implications is the primary objective.

Effective Radio Use—TT-76(5100)
Audience: New employees who must use radios in their assignment and are not familiar with techniques and requirements
Format: Self-instructional with answer pages
Description: Explains radio procedure and use of codes to help trainee learn to identify, operate and communicate effectively through the FM radios used by the Forest Service.

Calculating Fire Danger Rating—TT-83(5100)
Audience: Personnel responsible for taking daily fire weather readings and manually calculating fire danger rating values
Format: Programed instruction
Description: Questions, interactions and references designed to help trainee understand fire danger ratings.

Interagency Helicopter Management Guide—TT-78(5100)
Audience: Intermediate level firemen or aviation specialists with responsibility for helicopter management
Format: Lesson plans
Description: The lesson plans contained in this text cover the basic material necessary to effectively manage helicopter operations.

Study Guide for the film, "Nine Out of Ten"—TT-83(5100)
Audience: New employees with fire prevention responsibility
Format: Study guide to be used with film
Description: A series of questions for the trainee to study and answer after viewing the film, "Nine Out of Ten."

Fire Generals Policy Review—TT-86Q, R (5100)
Audience: Class II level firemen
Format: The review contains 2 books, a question section and referral section. The questions are answered on the Trainer Tester answer sheet TT No. Z 4c
Description: 120 questions concerning management of large fire suppression organizations and tactics. The referral section discusses policy and tactics and includes a reference guide.

Intermediate Fire Behavior—TT-80(5100)
Audience: Crew Boss and above level firemen
Format: Reference text
Description: This text is a good basic reference in the elements of fire behavior. It can be used for self-study or as pre-work in intermediate fire behavior courses.

Simulators Instructions Guide—TT-81(5100)
Audience: Instructors for fire simulation exercises
Format: Basic text
Description: Contains 5 chapters describing important considerations in preparing and using fire simulator exercises.

Sector Boss Training Guide—TT-82(5100)
Audience: Sector Boss qualifiers
Format: Lesson plans
Description: This text contains lesson plans and originals for overhead projectors. Lessons for the minimum criteria required for Sector Boss training.

New training texts near completion include:
Water in Fire Control—TT-90(5100) (available approximately Feb. 1975)

Crew Boss Training Guide—TT-91(5100) (available approximately March 1975)

Note: Forest Service offices can obtain copies by ordering from Central Supply on Form AD 14.
Department of Interior agencies may obtain copies through the Boise Interagency Fire Center. Other interested organizations should contact the Division of Fire Management, USDA Forest Service, Washington, D.C.

New Vistas For Federal Fire Training

Robert L. Bjornsen

Before we can seek new vistas for federal fire training programs we must place them in perspective by looking at goals of these programs, levels of training and the agencies involved. By doing this, we recognize that each agency has its specific training program goals and acknowledge that most share a common objective of "seeking to satisfy knowledge deficiencies and maintain proficiency in all phases of fire management."

These agency objectives are achieved at both local and National levels, and are stratified into beginning, intermediate and advanced courses. The principal federal agencies involved in the programs are Bureau of Land Management, National Park Service, Bureau of Indian Affairs and Forest Service.

Such is the framework for federal training programs. Now let us look at the major elements comprising these programs.

Structure

Federal agencies differ somewhat in the way their fire training programs are structured. For the most part, this results from unit location and size of organization. The Interior agencies (BLM, BIA and NPS) jointly coordinate their intermediate and advanced training programs, whereas the Forest Service delegates all intermediate (and some advanced) training to its Regions. The agency's top level training is administered and directed from Forest Service national headquarters and carried out at one location.

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Table 1.—Forest Service training program structure at various organization levels

Organization Level	Beginning & Intermediate	Advanced	External & International
Regional	• Implementation • Selected Development	• Maintenance Courses	• Cooperators • Coordination & Assistance • Contractors (train before use)
National	Criteria For: • Subject Matter • Qualifications • Standards • Development Control	• New Concepts	Clearinghouse: • Assistance • Coordination
Interagency	Coordination	Coordination	• Program Proposals • Planning

Table 1 illustrates the structure of beginning, intermediate, advanced, and external-international Forest Service training programs. Note that the national level provides such items as standards, development control, new concepts, coordination and assistance; while the Regional level is concerned primarily with maintenance, implementation, selected development and coordination, and assistance to local cooperators. Although not shown, the other federal agencies follow a similar pattern, but with greater orientation toward internal requirements and less toward external cooperation.

Location

We have seen that the structure of federal programs ranges from local to national levels. Program execution follows the same pattern, except that the type of course is more of a determining factor in where it will be given. Table 2 shows type of training and where it is conducted.

This is a good point to look at what the Canadians are doing with their fire training programs. We find the Provinces to be largely autonomous from the federal government, in that they conduct virtually all of their beginning, intermediate and advanced training within the Province boundaries. Alberta, for example has established a training center at Hinton where all levels of fire training are carried out.

The Provinces do exchange trainees and they do conduct national conferences/workshops to exchange ideas and coordinate programs. Such a training conference was held at the Petawawa Experiment Station in Ontario in November 1973.

As concerns international cooperation, there is a long standing program of exchanging trainees and instructors between Canada and the United States. However, for the most part, this program has been on an ad hoc basis; it needs coordination at the national level to optimize benefits to each country.

Table 2—Type of training and location

Training	Department/Agency	Location
Presuppression		
Initial Attack	Forest Service	(National Forest)
	Interior	(BLM District)
		(BIA Reservation)
		(National Park)
Suppression		
Overhead Intermediate	Forest Service	Region
	Interior	BIFC
Overhead Advanced	Forest Service	NFTC[1]
	Interior	BIFC
Other Fire Advanced	Forest Service	NFTC
Prevention		
Fuels		
Air Operations		
Management		
Law Enforcement—Trespass		

[1]National Fire Training Center, Marana, Arizona

Trainees

Location and trainee selection regularly complement each other, particularly at beginning and intermediate course level. As illustrated in Table 2, there is good opportunity for trainee exchange between cooperators who share mutual protection boundaries. For the most part, this exchange is accomplished informally and has been quite effective in bolstering presuppression-suppression programs.

Nearly all federal fire courses are open to cooperators. Usually the only restriction is space or instructor-to-student ratio. Customarily a quota is allocated for cooperators with invitations open to those qualified to participate. Application for trainee participation can be made to the Forest, Regional or National headquarters, in the case of the Forest Service. Application to Interior agencies can be made to local Parks, Reservations, District, State, Regional or National headquarters, depending on level of training desired.

Future

We looked at the how, where, and who portions of federal fire training program. Now let us see what the future holds. Recognizing the demand for greater skills in fire management will point towards some of the following items:

● Greater application of new educational technology, whereby analysis of knowledge deficiencies is stressed and selection of core subject matter is made more responsive to agency goals.

● More stress on fire *management* rather than fire *control*, with particular emphasis on the land use-fire protection interface and on fuels management.

● More centralized training to support interagency goals.

● Improved instructor quality, with more emphasis on instructor selection, training and pre- and post-course critique.

● More programed instruction using cassette tapes, video tape recorders and programed texts.

● Greater exchange of trainees nationally/internationally to obtain program unification and coordination.

The key to succesful federal fire training does not rest entirely with program structure, location, trainee exchange and future objectives, but relies to a great extent on a viable interchange of ideas, techniques and personnel between agencies and governments.

The field of fire management is dynamic. Today's techniques and methods cannot remain static but must be responsive to changing needs in the environment and changing technology. Hopefully federal fire training programs will meet this challenge and open new vistas. △

Basic Firefighters Course— TT-87(5100)

Audience: New firemen

Format: Lesson plans and visual originals

Description: This course contains the lesson plans needed to meet minimum criteria for training new firemen.

Clouds and Associated Fire Weather for Training Fire Behavior Specialists—TT-88(5100)

Audience: Crew Boss and above level firemen

Format: Scrambled test with questions and answers

Description: This test is a series of questions and answers which refer the leader to various parts of the book. It discusses cloud formations and consequent weather indications.

Learning Fire Weather (a self study course)—TT-89(5100)

Audience: Crew Boss and above

Format: 120 questions to answer on Trainer Tester answer sheet TT No. Z 4c

Description: This self-study course is to be used with USDA Agriculture Handbook 360, *Fire Weather*. It is designed to let the reader determine his comprehension of the material and develop thorough understanding with an ability to apply it in field application. The text contains a referral section keyed to *Fire Weather*. △

Counteracting Common Myths of Training

Phillip E. Crawford

Myth No. 1—Training is something a trainer does to or for a trainee.

Managers and trainers often lament the high cost of training and the frequent lack of money for the first class training job they would like to do. Unfortunately, a shortage of money is probably not the most common reason for the lack of effective training. The problem is more often a failure to apply basic principles of human performance in a systematic, measurable fashion. In fact, the application of these principles in many cases indicates clearly that we can't afford *not* to train.

The reasons people in organizations don't apply systematic human performance principles are varied. In a few cases it may actually be a shortage of money; in other cases it may be ignorance. But in most cases it is the lack of a sound philosophy of training. All too often training programs are based on what might be called *common myths of training*.

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Let's look at these myths and see what alternatives the experts, the human performance specialists, can provide to improve the learning process.

Myth No. 1

Training is something a trainer does to or for a trainee.

Consider for a moment the word *training* itself. It's similar to the word *teaching* which is something a teacher does to someone else. Students are *taught*; trainees are *trained*, implying that the trainer is active and the trainees are passive. All too often this is exactly what happens. The trainer acts as the transmitter and the trainee is supposed to be the receiver. Unfortunately, transmitting information isn't the same as teaching, and does not necessarily lead to learning. As Dr. Robert Mager aptly put it, "If telling were teaching we'd all be so smart we could hardly stand it." *(4:7)*

For most of us this lopsided teacher-student relationship is part of our personal learning philosophy because we've seen little else throughout our many years of formal schooling. The college lecture or any lecture, for that matter, is probably the extreme case of this method. Students simply listen and take notes in class, but then learn most of the material later by studying their textbooks, notes and other sources. Unfortunately, training in many organizations is done this same way, but usually without the follow-up required of college students who must pass a course.

Someone once said a teacher doesn't teach anything; she simply sets up situations that enable students to learn. Experts in the field of learning have developed a variety of new approaches to learning based on what is called a student-centered system rather than an instructor-centered system. This idea sounds deceptively simple, but there is an important difference in the intent of the two approaches. In a student-centered system the focus is on the performance of the learner, whereas in the instructor-centered approach the focus is on what the teacher does. In the instructor-centered system if a student doesn't learn, he is classed as a failure, but the trainer doesn't bear the responsibility for having failed, too.

Most training is set up to make the job easy and efficient for the trainer. After all, his time is usually thought to be the most valuable. One way to put costs in better perspective is to calculate a cost of failing to learn, a sort of "cost of washout."

If we specify in advance precisely what we want trainees to learn and after training a certain number can't perform, we can determine costs associated with learning failure. This cost should include the time and expenses of the trainee as well as a fraction of the time of the trainer. If many trainees are involved, their costs in total far outweigh the costs associated only with the trainer.

Another problem with focusing on the trainer is that we lose sight of the trainees whose behavior we set out to change in the first place. We become obsessed with what the trainer is going to present and how he is going to present it. Strange as it may seem, current research (2) on learning shows that student learning depends very little on the particular method the instructor uses. Thus, other factors such as economy, trainee characteristics, and instructor skills become more important variables.

For additional information on learner-centered approaches to instruction, see the reference list at the end of this article. For example, you might want to look into an approach called Personalized System of Instruction (PSI) (8), or you might be able to adapt a method called Contingency Management System (1:145) which depends on developing "contracts" between student and teacher.

Perhaps the most important concept in a learner-centered approach is the emphasis on the individual's being ultimately responsible for his own learning. Hence, the role of the trainer is to create learning situations making it possible for trainees to take that kind of responsibility. After all, isn't that what we always say we want employees to do?

But what motivates people to take a more active part in their training? This question leads to Myth No. 2.

Myth No. 2
Learning, like good medicine, must be distasteful or at least very difficult if it is really effective.

This idea, like Myth No. 1, seems to be part of our built-in education value system. In fact, psychologists point out that in many learning situations we teach people to hate the very subject they are supposed to be learning. (4) You might try examining your own training programs by setting up a simple test to find out if trainees leave your training program with a more positive attitude toward the subject.

Myth No. 2—Learning, like good medicine, must be distasteful or at least very difficult if it is to be really effective.

Human performance specialists refer to a person's attitude toward the subject as either an *approach* tendency (positive) or an *avoidance* tendency (negative). Trainers often take for granted that trainees are automatically approach-oriented or that if they are not, they should be. A successful trainer, however, knows that generally the responsibility for generating approach tendencies lies with the trainer. Blaming a trainee for lack of interest only results in wasted training effort.

The key to strengthening approach tendencies is to provide an easily understood payoff for the trainee. He has to see how the training will help him solve his work-related problems, increase his productivity, increase his pay, etc. Negative rewards may work as long as they can be applied externally; but, once a trainee is on his own it is difficult to continue the negative rewards. Hence, positive motivational techniques have greater long-range payoff.

Futurists are pointing increasingly to the need for education as a life-long process (9). The procedure of concentrating education in the early years is inadequate to enable

people to cope with the ever increasing masses of information in a rapidly changing technological society. People must continually seek new information and develop new skills. To meet this need, educational programs at all levels should emphasize approach behavior.

Myth No. 3
Training is essential even though its effects usually can't be measured.

In recent years human performance specialists have done much to dispel this commonly held belief, yet a great many training programs are set up without specified, expected outcomes and ways to measure them. One reason is the difficulty in deciding in advance just what the expected outcomes should be. It's much easier to think in "fuzzies"—to avoid having to pin down the performance we really expect (5, 7).

Let's look at a typical example. The following objective was taken from the lesson plan of a formal fire training course: "Broaden trainee's understanding of computer potential and application, with particular emphasis on Fire Qualification Ratings."

Although this statement was prepared by an instructor as a learning objective, it is really a goal—a general statement of intent. An objective specifies performance in terms that can be measured, whereas a goal usually encompasses a whole series of related objectives.

Perhaps one reason that many persons have difficulty in human performance terms is the preciseness of intent which this requires. Deciding precisely the intention of an objective requires a lot of soul-searching and deep thinking.

Another problem with stating specific measurable objectives may be that once an instructor specifies exactly what a learner is supposed to be able to do, both the instructor and the learner can be held accountable for the learner's perfor-

Myth No. 3—Training is essential even though its effects usually can't be measured.

mance. Traditionally, trainers have not had to take this kind of responsibility. Consider again for a moment the objective from the fire training course. It states what the instructor is going to do, but it does not say anything about the trainee performance. It also uses fuzzy words such as "broaden" and "understanding." These conditions aren't measurable. They don't specify any performance on the part of the learner.

There are dozens of similar words or phrases we use regularly to avoid being specific—phrases such as "develop an appreciation for," "become familiar with," "have a feeling for," "develop an understanding of," etc. The alternative to these phrases is to use action words for which measurement levels can be specified. In many ways the performance-oriented instructor is like the coach whose success is measured not on how well s/he gives directions but on how many games the team wins. Stating learning outcomes in precise terms is a great help to learners, too. They can devote all their efforts to the job of learning rather than trying to guess what the instructor wants them to learn.

You should, however, be aware

that once learning objectives have been stated and performance criteria set, you can forget about student performance according to the traditional normal curve. Instead of starting out with the assumption that a certain part of the group will flunk and a certain part will perform at the top, the objective is to do everything possible to get everyone to perform at the level established in advance. And if the situation is set up properly, most will meet the high performance standards.

Besides improving the learning process and building a better relationship between teaching activities and what happens to the learner, measurable objectives provide a way to gauge the cost-effectiveness of training efforts. We usually are able to determine the total cost of any given training effort because we can account for the time and expenses of instructors and trainees as well as other training costs, such as materials and facilities. But too often we have little more than a general feeling about what trainees can actually do after training that they couldn't do before. This is where performance objectives can pay off.

If you are just beginning to develop performance objectives, start with easily measured performances such as identification or physical skills and pick a subject matter area you know well. Prepare your performance test first—this tells you what you want trainees to do. Then you can begin to translate these test items into performance objectives. If you find your test items don't match the performance you want, you're going through an important analytical process. Once you find some success with the more easily defined and measured areas, move on to tougher things such as human relations skills and decision making.

Myth No. 4
Most production problems depend on people and can, therefore, be solved by training.

Huge sums of money are wasted trying to solve problems through training when the cause of these problems has little or nothing to do with training deficiencies. The first step in solving any problem is to define the problem, not to assign the cause to a lack of knowledge. Unfortunately all too often even people who should know better conclude that the solution to most of their employee performance problems is training.

Let's look at the approach used by one specialist to analyze performance problems. Dr. Joe Harless has developed an approach called Front End Analysis (F-E-A) (3:229). In its simplest form, F-E-A calls for a series of straight forward steps to guide the analytical process. The procedure of F-E-A is perhaps most easily shown by a series of questions (3:231):

1. Do we have a problem?
2. Do we have a performance problem?
3. How will we know when the problem is solved?
4. What is the performance problem?
5. Should we allocate resources to solve it?
6. What are the possible causes of the problem?
7. What evidence bears on such possibility?
8. What is the probable cause?
9. What general solution type is indicated?
10. What are the alternate subclasses of solution?
11. What are the costs, effects, and development times of each solution?
12. What are the constraints?
13. What are the overall goals?

Since our concern here is with training, let's focus on question 4: "What is the performance problem?" Almost all performance problems can be classified as environmental (working conditions, etc.), motivational, or training. The details of F-E-A are more involved than we can cover in depth here, but you can see that spending money on

Myth No. 4—Most production problems depend on people and can, therefore, be solved by training.

training to solve problems caused by other factors is foolish. F-E-A is simply a technique to analyze complex problems by asking the right questions and collecting the right information. From this kind of analysis, training problems can be separated from other kinds of performance problems.

Myth No. 5

The most efficient and usually the most effective way to train is in groups, preferably small groups.

This idea persists in our culture for the following reasons:

- Almost everyone has been conditioned by years of learning in groups.
- Many instructors don't know how to use other methods.
- Group training is thought to be more "economical".
- Telling is easier than teaching.

A combination of factors now points to the intrusion of a much different learning approach —individualized instruction *(10)*. Of course, in the final analysis, all learning is individual; no one can learn for someone else. Also, most informal learning is done individually—by reading, trial-and-error, and discussions with others. Yet we see one formal training session after another where an instructor talks in front of a group of trainees in the traditional instructor-dominant fashion.

The idea of individualized instruction has its basis partly in the fundamental psychological concept of individual differences; i.e., that people learn various kinds of information and skills at different rates and in different ways. Individualized instructional systems make it possible to set up learning conditions best suited to each learner. With this approach, learners can go at their own pace using the type of learning materials and methods (audio-tape, TV, books, seminars, etc.) they find most helpful. There is also much greater flexibility with this method; trainees can learn almost anywhere—at work, at home, in learning centers, even while they commute.

Individualized instruction is especially appropriate in small organizations or work groups where it isn't practical to assemble a group, even a small one, to conduct a training session. With individualized learning, the learner doesn't have to admit his ignorance to the whole world as he does in a group learning situation. He can go back over something as many times as he needs to master the material.

Mastery Concept

This mastery concept is a fundamental part of the learning process, but is often overlooked. All too often trainees are allowed to "pass" by demonstrating a performance level as low as 50-70% on a given topic, and then allowed to go on to other topics, or worse yet, to a new job—without the skill or knowledge level to perform well. The mastery approach simply requires a trainee to perform satisfactorily at a very high level on all concepts or units. There is no use going ahead with less than satisfactory performance or with good performance on some concepts and poor performance on others for an overall "average" or passing performance. Some wag once asked, "How would you like to undergo brain surgery by a physician who got an A in surgery and a D in neural anatomy?"

What conclusions can we draw from examining these training myths? First, these are only current misconceptions about training and human performance. As new knowledge becomes available we may find other misconceptions. The future lies in seeking out and adapting the newest discoveries.

Second, a number of fields —psychology, educational technology, human performance—are making important contributions for the improvement of training. These contributions can provide solutions to many common training problems. However, if these new ideas are to be applied effectively, they must first become part of the philosophy of trainers and managers.

Counteracting Common Myths of Training Literature Cited, p. 31

Continuing Education For Fire Management Professionals

Charles W. Philpot

How are the demands upon resource managers changing as the transition from "fire control" to "fire management" is made? What new tools and knowledge will be needed to do an effective job? How will this new information and training be made available? A strong continuing education program for fire management professionals may be one answer.

The complexity of the fire management job is apparent if one accepts the following precept:

Fire management is the integration of fire protection, prescribed fire, and fire ecology knowledge into multiple-use planning, decision making, and land management activities. Fire management is not a program of "letting fire burn." Fire management places fire in perspective with overall land management objectives to fulfill the needs of society, optimize the productivity of the land, and sustain environmental quality. Fire is evaluated not only for its potential to do damage, but also for its beneficial role in many ecosystems. Along with the "good" and "bad" aspects of fire, the impact of suppression techniques on the land and the effects of all land management activities on fire potential are assessed. Successful fire management depends on effective fire prevention and fire control programs and on land management

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planning that considers fire ecology relationships.

Implementation Problems

There are several problems associated with complete implementation of practicing fire management. These include:

● Personnel trained and experienced in fire suppression and prevention are being required to broaden their responsibilities into all phases of fire management.

● Universities do not include many aspects of fire management in their land management curriculum.

● Many "non-fire" members of planning teams or multifunctional managers of fire management operations do not understand fire behavior or fire effects.

● The number of young professionals entering land management agencies has been greatly reduced. This prevents the supplementation of experienced personnel with new ideas, tools and knowledge.

● The practice of fire management requires new tools, some of which are completely unfamiliar to fire personnel. Familiarity with these tools is not only a requirement for sound fire management, but will help insure application of research products currently too complex for the existing training and experience.

● The analysis of fire management expenditures is becoming more thorough and demanding. Analysis of alternatives and their economic and ecologic consequences will become mandatory in the near future.

Solutions

Two things must be done to solve these problems:

Future fire planning will require substantial use of simulation techniques and computers.

1. We must insure that fire managers become more knowledgeable in ecosystems description and dynamics, computer technology, systems analysis and planning, personnel management, economic evaluation, modeling and simulation, and remote sensing.

2. We must educate "non-fire" managers about fire behavior and effects. They must learn to predict and understand the consequences of their planning and operational decisions upon fire hazard, fire occurrence, and fire related ecosystem changes.

This job can be attacked from several levels. We can support appropriate changes in university curricula. We can develop strong agency training programs. And we can be much more selective in our qualifications of expertise in choosing personnel for fire management positions. In fact, we must do all of these. But, there is one technique which has very high pay-off in terms of the fire management job ahead

Total time to complete the course was 12 weeks which minimized time away from the job. Because the program was designed by the agency to meet specific goals and was attended by many similar employees, it is probable that the personal hesitancy which must be overcome before going "back-to-school" was greatly decreased. The main problem this approach presents is the lack of specific job descriptions for fire management positions. Everybody knows what a silviculturist is, but a fire management specialist is very hard to define.

Until we can define fire management positions needing certification, the more productive alternative is probably continuing education of fire management personnel in an array of positions. Through personal commitment we must generate financial and administrative support for continuing education. The quality of the fire management job depends upon it.

Wilderness Fire Management will require ecosystem analysis, fire behavior prediction and fire effects assessment.

and one we have not stressed nearly enough in the past. This is continuing education at the graduate level.

Education Necessary

Fire management organizations desperately need professionals with a better awareness of new ideas and tools. Some of the needed knowledge is too complex to be gained while on the job or by limited agency training programs. This education must come from extended periods away from the job and from exposure to an array of philosophies in an environment conducive to maximizing learning.

Formalized continuing education has many advantages. As a student, the practicing professional can take his specific and projected needs to school with him. Education, normally stored by students for later use, can be related and applied immediately. Undergoing advanced training without the pressures of everyday work is not possible with correspondence courses, agency

programs, and other updating techniques. The mix of experiences and expertise is only available in a formal education program.

Investigate Alternatives

There are many practical reasons why more fire managers don't receive continuing education. Funding has not been conducive to massive programs. In fact, only 14 fire managers have gone back to school for advanced training in the last 14 years. Education away from the job is expensive and certainly funding is one constraint.

Therefore, alternative educational opportunities should be investigated. A recently initiated program in the Northern Region (Region 1) of the Forest Service leading to certification of silviculturists provides advanced training for many professionals at a minimum time and cost. A group of 24 professionals participated in a curriculum designed specifically to update practicing silviculturists.

Integrated land-use planning requires input from fire management staff on fire hazard, value classes and fire ecology.

Step Up The Test

Ben Lyon

Leo E. Nolte, peerless Fire Prevention Technician, was looking forward to another brilliant and challenging fire season. His "Red Card" fireline rating was for Sector Boss. But this year, he had been told, there was a new deal. Everybody had to pass something called the "Step Test." The Step Test was supposed to measure a person's physical fitness for fireline work. You couldn't get a Red Card without passing the test.

Nolte's physical condition was something less than spectacular. In addition to his other vices, Nolte was particularly addicted to beer, cigarettes, spaghetti, and rest periods. His weight was becoming a problem. He became aware of this the night his bed collapsed under him. His injuries could have been considerable if the platter of pizza had come down on top of him. However, he had skillfully deflected away most of the hot cheese with the current issue of TV Guide. There were only a few minor mushroom burns on his chest.

Nolte tried to cut down on his smoking by only permitting himself one cigarette after each meal and one before going to bed. He stuck to this rule. But unfortunately, he found himself compensating for this by eating 8 meals a day and going to

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bed 3 or 4 times. The latter routine was interfering with his tour of duty, and besides that, people around the Ranger Station were beginning to speculate on what Nolte was doing in bed so often. So he gave up trying to cut down, deciding that he would quit totally—at some future time.

Getting enough exercise was also a problem for Nolte. There was practically no place on the District he couldn't get to in his pickup —even if it did mean wiping out a few tie rods and causing a little body damage at times. Each time he went out on his day off to play golf or go bowling, he would be stiff and sore for the next several days. For Nolte, exercising was a waste of time. He would restrict his program to watching football on TV. Which reminded him, he had blown his last two paychecks on a color set which could be remotely controlled from his new bed.

A Threat

Clearly, this new Step Test posed a threat to the career of Leo E. Nolte. Nolte had tailored his standard of living to an income based in part on fire overtime pay. During a "good" year, his income was even high enough to disqualify him for the food stamp program. To be deprived of this extra fire duty would possibly mean giving up his remotely controlled TV, his evening pizza, and perhaps certain other amenities. In addition, without a

Red Card, Nolte could not go off-Forest on fires, and he would be relegated to the monotony of his prevention work unit, and the endless campfire permits, dirty latrines, and questions about flowers and animals.

Unfortunately, Nolte had some other problems. His boss had become very upset when Nolte inadvertently started a fire at the Ranger Station in the fire prevention poster locker. It occurred during Fire Prevention Week. The station's new Smokey Bear suit was badly charred before the town fire department put out the blaze.

Then, during the Boy Scout Jamboree, Nolte carelessly parked his pickup on a hill above the camp. While he was giving a talk to the Scouts on "Outdoor Manners," the un-chocked pickup rolled out of its parking spot. Gaining velocity rapidly, the unattended vehicle thundered down on the tranquil scene below. As Nolte and his former admirers gaped in wide-eyed disbelief, the grey and green monster bounced and swerved wildly across the once peaceful site of Camp Atcheecoolee, successively wiping out a charcoal brazier, 2 bulletin boards, three tepees, one chemical toilet, and a freshly carved totem pole bearing the Indian-like faces of several high-ranking personalities. Following this incident, Nolte's boss officially advised him that his job performance was less than adequate.

Strong Determination

It was now up to Nolte to prove that he was merely the victim of a little bad luck and perhaps some easy living. It was with a sense of strong determination that he reported to the Ranger Station to submit himself to the Step Test.

"Tick tock, tick tock, tick tock," went the metronome. In time to this cadence Nolte stepped up and down on a bench 15¾ inches high. Each time his 210 pound mass came down, the thud of his heel on the floor was like thunder, shaking the

building violently. As he would lift his weight again onto the bench his knee joints crackled like dry kindling. Within 30 seconds the sound of Nolte's breathing resembled that of a gale force wind whistling between the cracks of an un-chinked log cabin.

At one minute and 30 seconds, Nolte's eyes were beginning to bulge. Giant blue veins were throbbing visibly across his forehead. He could feel huge drops of sweat running down his sides from his armpits. The bench seemed to be getting an inch higher on every beat of the unrelenting metronome. He was beginning to fall behind the beat. His pants seemed suddenly too tight. He could hardly bend his legs. The room was getting too warm. It felt like a sauna. Nolte's world was closing in rapidly.

"He'll never make it," said the District Ranger to another onlooker standing nearby. "Three minutes to go and I'll bet his pulse is already over 185. He looks worse than the front of his pickup after it went through Camp Atcheecoolee."

A Beaten Man

It was only a matter of a few more seconds until the muscles in Nolte's left leg cramped up. It was just as if the main landing gear had collapsed under a Boeing 747. With a scream of anguish, Nolte crashed heavily to the floor, a beaten man. There would be no Red Card for Leo E. Nolte. He had flunked the Forest Service Step Test.*

On his way home that afternoon, Nolte limped into the Paymore Drugstore for a pack of cigarettes. "Maybe a bottle of Geritol, too," he said to himself, stumbling clumsily into the paperback book rack. "What's this?" he muttered, picking up one of the books he had knocked to the floor. "The New Aerobics," he said. "Funny name for a book."

Thumbing rapidly through the pages, Nolte immediately perceived the inestimable value of this $1.25 book to him in his time of need. He noted that the book clearly explained how somebody in poor condition could get into good shape using programs of jogging, bicycling, swimming, or other activities. Why hadn't somebody told him about this before, he wondered.

Always alert, Nolte forgot the cigarettes, but he bought the book and went home to read it.

Ill-Omened Life Style

Nolte began reflecting on his ill-omened life style. He had become enmeshed in a three-year web of spaghetti, beer, and chocolate peanut clusters. His evenings at home were swallowed up by Adam-12, Dr. Marcus Welby, and The Roller Game. On the job he did little but fill out reports, doze in safety meetings, and drive up and down the road looking wise.

Where was the Leo E. Nolte of old? Where was the Nolte who would bound from his pumper and streak up the hill with 300 feet of c.j.r.l. hose under his arm and a pulaski at the ready?

Off in the distance, Nolte could hear a tune. Some voices were softly singing:

Where is Olde Nolte
With legs like steel bands,
Arms of sheer sinew,
Wrenches for hands?

Stands Nolte now,
Midst flags and confetti?
No! He's a tired old Ranger
Who had too much spaghetti.

What happened to Nolte?
What was his demise?
Too soft a life,
Are we to surmise?

Animation thus ending,
Rigor mortis is near.
Conquered at last,
By a six-pack of beer.

"No! No!" shouted Nolte, leaping to his feet. "That's not ME! That's not the REAL Nolte!"

Nolte, bursting with anxiety, began hobbling about the room searching for his copy of "The New Aerobics." He was determined to restructure his life style, beginning RIGHT NOW. But there was a distraction.

The TV was blaring out the refrain of Merle Haggard's latest hit single, "The Overhead Blues." Nolte listened to the lyrics, as Haggard strummed his guitar.

"Out west they'll have big blazes,
In the north they'll need some crews,
When Sector Teams start moving,
Which outfits will they choose?

The San Berdoo burns hot and clean,
The Wasatch roasts its boulders,
Chatahootchie's all aglow,
While Chequamegon smolders.

There's action on the Santa Fe
Coeur d'Alene and all the rest,
But you caint get on the fireline,
'Til you pass that old Step Test."

The last line galvanized Nolte into action. He took two quick steps forward, and with a vile oath, booted in the screen of his new TV. As he recalled it later, he had caught Merle right on the point of the jaw. It seemed a fitting end, not only to the song, but also to Leo E. Nolte's old way of life.

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*The Physical Fitness Test (Step Test) shows a person's fitness in relation to others his age and his fitness for hard work. Testing consists of requiring the individual to step up onto a bench 15¾" high (13" high for women) approximately 22 times per minute for 5 minutes. The post-exercise pulse rate is then taken and evaluated with age and weight as factors and a fitness level is determined. Fire fighting and other jobs requiring sustained hard work require a rating of very good on a scale consisting of superior, excellent, very good, good, fair, poor, and very poor.

Safety First
Luck or Success?
Bob Hall

"Safety First" means individual responsibllity.

Like most safety projects, The Safety First program of the California Region of the U.S. Forest Service grew out of painful awareness of an unacceptable accident rate. Extreme fire environments, high hazard air operations, and human error had combined to create a long, frustrating record of injury and death.

During the fall of 1971, two separate accidents resulted in five more fatalities by burning. These tragedies seemed to push the collective attitude over the tolerance brink. As managers and firemen, we could not continue to accept what was happening to employees and friends. Something had to be done and it had to be something effective.

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Rules, slogans and other campaigns had been tried with too little success.

We had to identify real problems and we had to find solutions. Top management recognized that valid problem and solution identification would require inputs from firemen throughout the Region. A management and organizational communications consultant was hired. He helped design a data gathering system that would permit personnel at any level in the organization to present their observations and ideas to top management without having that information filtered and edited.

The backbone of this system was to be a data gathering team of hand-picked Forest Service employees who would go out and get the information directly from firefighters and other interested individuals.

Team Selected

By the summer of 1972, the data-gathering or -sensing team was selected and trained. Team members came from throughout the Region and represented a wide range of grades and skills. There were Regional office and supervisors office staff, District Rangers, and seasonal and full-time fire control technicians, but all were interested in safety and all were considered to be "first stringers."

The objective was to contact as many firemen as practical and ask:

• How do you feel about fire safety?

• What is needed to improve it?

• What are the barriers to improvement?

Working in sub-teams of 2 or 3 individuals, the sensing team sampled every Forest in California, adjacent Forests in 3 other Regions,

and numerous cooperators within the State. Altogether, the teams listened to nearly a thousand individuals.

Bull Sessions

The settings were intentionally informal with a minimum of inhibiting factors. Individuals were encouraged to tell it as openly as they might in a barracks "bull" session—and they did. Oh how they did! Statements by the thousands were collected. There were literally sacks full in all sizes and shapes. They were on charts, note papers, letters, or whatever made it easy for firemen to have their say, and some came in language strong enough to make even a Forest Service typewriter blush.

There had been amazing uniformity in the data. There was universal feeling that fire safety wise, we didn't practice what we preached; or as one fireman put it, "When the whistle blows, anything goes!"

Most criticism fell into seven major categories:

Air Operations—There was little trust in the quality of equipment and pilots. This was especially true of contract and rental aircraft. The lack of enough well qualified Forest Service personnel to inspect and manage air operations was frequently mentioned.

Communications (organizational and interpersonal)—There were numerous statements about the poor flow of information throughout the organization. Communication from the top down was slow and often didn't reach everyone. There were many blocks and filters hampering upward communication. There was fear of reprisal for speaking out. In other words, two-way communication wasn't working as it should.

Equipment—Many firemen felt that the system for designing and procuring fire equipment had lost touch with field needs. Supply and use of protective clothing and shelters was inadequate. New multichannel radio equipment was under-utilized due to lack of knowledge.

Fire Management—Plans and service functions were not performing to standard, it was felt. Delays and confusion were causing ineffective and unsafe action. Staffing and job knowledge in these functions were frequently inadequate. Command and line were not giving adequate recognition to downhill and indirect line construction hazards.

Personnel—Many expressed the opinion that the lack of year-long employment causes a dependency on seasonals in key position, and that limited tenure and training opportunities limit skill levels of seasonals. Firemen were also concerned about the lack of attractive career ladders. There was controversy regarding hair and dress codes.

Red Cards—There was extensive dissatisfaction with the red card system. Many believed that red card ratings were based on factors other than qualifications. Who you were seemed more important than what you were. Red cards were seldom checked or used on fires. Some firemen were physically unfit to do jobs for which they were red-carded.

Training—Firemen reported that they were not getting enough training to do the job safely. Basic Forest fire schools had been discontinued on a number of Forests. On-fire assignments were difficult to get. There seemed to be little uniformity in training. Training quality also needed improvement.

"Safety First"

The sensing team assembled and delivered this raw data to the Regional Forester, appropriate Division Chiefs, and the Forest Supervisors. Expletives were definitely not deleted. Some typical comments were: "They can't print that kind of stuff;" "I didn't think it was that bad;" and "We've got to do something about this!" Fortunately, the determination to improve prevailed, and before the meeting was over, the implementation or action phase of "Safety First" was born.

Action in the seven major areas was initiated. Actions varied from minor equipment changes to an effort to change the whole fireman cultural attitude toward safety. Some changes were implemented immediately; others needed hundreds of man hours of work before action could be taken.

Virtually all aspects of fire management were affected. Many of the actions were simply attempts to "make happen" what we had said for years "should happen."

By the time the 1973 fire season arrived, major changes had been made. The rapid pace of change created some confusion; but, generally, field response was good. As more action items were completed and personnel had more time to adjust, operations became smoother. There are still some parts of the Action Safety First Plan to be completed, but the majority were completed by the beginning of the 1974 fire season. There is now much less confusion and even better acceptance. There is also an awareness that this must be an on-going "way of life" type program if it is to succeed.

Has It Succeeded?

The only thing we can say with certainty is that it is too early to tell if it has succeeded. Right now, we can say that fatalities since Safety First are down from the preceding few years. We know that fire fighters seem much more safety conscious than before.

Safety is very much in style, but have we found the real problems and solutions? Is it luck or success? The next headline you read may be announcing another tragic fire safety failure in California, or perhaps 10 years from now we will look back with pride on a program that made a difference.

We have planted a tree. It has grown rapidly. We don't know yet if the fruit is bitter or sweet.

Fitness Important On Some Forest Service Jobs

Richard L. Marsalis
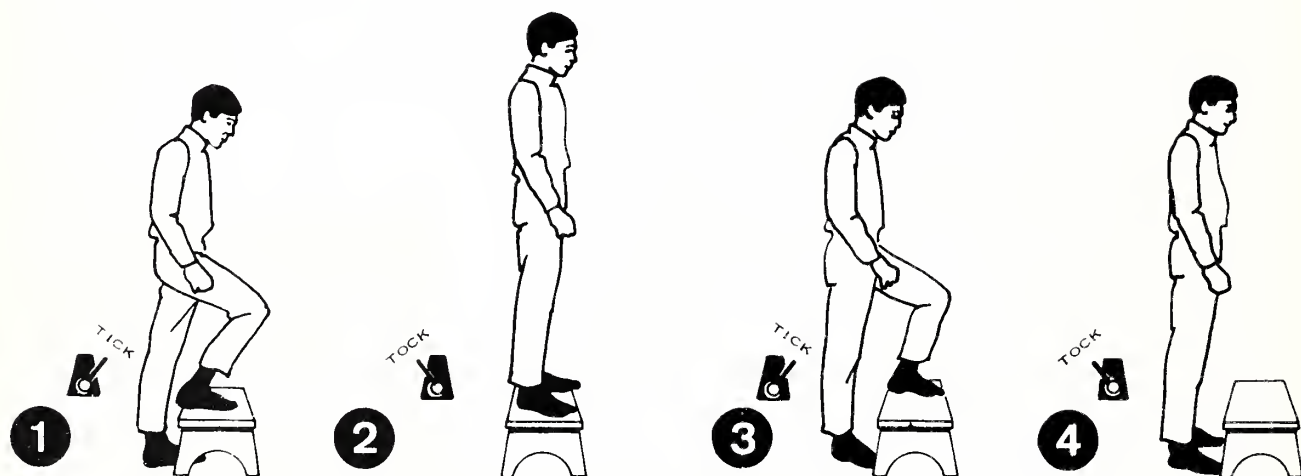
The Forest Service fitness test becomes necessary in 1975 for jobs related to fireline construction. Because of this fact, interest has increased in the test developed several years ago by this Center in cooperation with Dr. Brian J. Sharkey of the University of Montana Human Performance Laboratory.

Thousands of Forest Service employees in all Regions have voluntarily taken this 5-minute step test to learn their fitness for sustained hard work. Only those rated very good, excellent, or superior in the test can be expected to perform arduous work for long periods without undue fatigue and risk of injury.

Recently, Dr. Sharkey published a book, "Physiological Fitness and Weight Control," that offers information about exercise activity suitable to a fitness testing program. Employees who score poorly on the Forest Service fitness test can use the book to tailor a fitness program for self-improvement. Those who have passed the test with a high rating may find the discussion on maintaining fitness useful.

The book includes the Forest Service step test and other tests. It promotes no exercise system, but explains approaches to fitness and weight control using the calorie as the basic unit of measure. Recent research illustrating the relationship of fitness to weight control is discussed. Dr. Sharkey offers a way to quantify exercise so the amount needed to achieve fitness can be prescribed accurately. He also presents a series of carefully tested learning experiences to assist his readers in achieving fitness and weight control.

Personnel interested only in the Forest Service step test can write the Center for the booklet "Measuring Physical Fitness of Forest Service Personnel" and the physical fitness calculator. The Center will revise the calculator during FY '75 so that fitness levels can be determined more easily.

Persons who want more detailed information about fitness may want to obtain Dr. Sharkey's book. The 158-page, spiralbound book sells for $5.95 and can be ordered from Mountain Press Publishing Co., 287 West Front Street, Missoula, Mont. 59801.

Richard L. Marsalis is Safety Specialist, Missoula Equipment Development Center, USDA Forest Service.

Training Program Keeps Northeastern Compact Ready

Richard E. Mullavey

For 25 years the Northeastern Forest Fire Protection Commission has successfully functioned in its stated goals of mutual preparation and protection in wildfire control among member States. Members include Maine, New Hampshire, Vermont, Connecticut, Massachusetts, Rhode Island, and New York, plus the Canadian Provinces of Quebec and New Brunswick.

The governing body of this fire protection group is the "Commission." The agreement under which the members operate is a "Compact." Like most multi-named organizations, the regularly-used title becomes shortened and altered and the organization is commonly referred to as the "Northeastern Compact."

The mutual aid provisions of the agreement have fortunately been activated only five times in 25 years. But the success of these five calls and the success of potential future calls is based on the training programs instituted at the very beginning and carried on regularly and successfully ever since.

Here's how it works. A Training Committee consisting of one representative of the USDA Forest Service from each of the member States, Provinces and is responsible for planning and directing the training. In July of each year the training "team" meets to review the general theme for the previously agreed

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upon winter training session, and to plan the specific assignment of topics and tasks. Objectives are reviewed, trainee qualifications are established, topic material is determined and instructors are chosen, suggested or otherwise designed.

Variety of Instructors

Some of the instructors for the 3-day winter meeting may be Training Committee members who are qualified to speak on a particular subject or lead a particular workshop segment. Other member State fire personnel with particular skills are called upon to participate.

Members of the Provincial fire protection organizations are tapped to provide their views and experiences in various fire management activities appropriate to the meeting needs. Speakers from states other than the Compact member-states are frequently called upon.

In addition to regular participation by personnel from the Forest Fire Management Group of the Northeastern Area, State and Private Forestry, instructors are drawn from local National Forest personnel, specialists from other

NORTHEASTERN

FOREST FIRE

PROTECTION

COMPACT

Creating Your Own Audio-Visual Programs

Richard Zulzer

There is a wide range of audio-visual devices and systems you can choose from to get a training job done. The more glamorous options include such items as computer assisted instruction, video tape programs and multi-media packages.

However, you can successfully create visualized training programs without spending a lot of money and without acquiring extensive production skills. For example, a simple overhead projector and a few basic visuals—that you create yourself—can give you all the communicating power you need.

The overhead projector is sometimes referred to as an "electric chalkboard." This is an apt description, because it emphasizes the simplicity of the unit. Like a chalkboard, it is easy to work with, can be used in normal room light, and permits the speaker to remain "in the picture." It lends itself to a very personal type of presentation.

At the same time, the overhead projector is free of the chalkboard's shortcomings. The latter presents an awkward writing angle. It also severly restricts the variety of visual materials you are able to use.

Convenience and Flexibility

By contrast, the overhead projector offers you convenience, clarity, and a high degree of flexibility. The visuals you use, called transparencies, are 8½-by-10½-inch sheets of film that lie flat on the projector stage—right in front of you. What you see on the stage is what the audience sees on the screen or wall.

Richard Zulzer is with the Visual Products Division of the 3M Company.

There is no need for you to turn your back to the audience. This enables you to maintain eye contact, which is a basic element in personal communications.

As you are speaking, you can use a pen or pencil as a pointer. Simply touch that part of the visual you are discussing. And, to control what your audience sees, you can use a sheet of paper to cover parts of the visual, gradually uncovering each new item of information.

Or, you can "build" a visual as you speak. This is done with film overlays. Prior to your presentation, you tape all 4 sides of your basic visual to a cardboard mounting frame. Then, you tape one side of each overlay to the frame, making sure the pieces are in proper registration. During the presentation, you simply overlay these additional sections of the visual at the appropriate time.

In all cases, when you want the audience to look at you, rather than the screen, you simply switch off the projector.

Adding Information

While a visual is being projected, you can use a marking pen to underline or circle data. Or you can add new information as you are speaking. In lieu of using only prepared visuals, you can place a blank sheet of film on the projector stage and create the visual as you speak.

Visuals can be prepared long in advance of the session, or only minutes before. Once you have your printed original material in hand, you simply place a sheet of film over it and run both through an infrared transparency maker, a 4-second process.

Of course, good visuals require good printed originals. Start with a plain sheet of bond paper or graph paper (the blue lines will not reproduce when processed through an infrared transparency maker). Use a black marking pen or No. 2 lead pencil to add information. If you use a typewriter, a carbon ribbon is required, and you should use only capital letters.

You can mix printed information with hand-drawn art, charts and graphs, clip art, newspaper illustrations or even pre-printed forms. A wide variety of transparency film is available so that you can have black images on different color backgrounds, and black or color images on clear backgrounds. Once you have imaged your transparency film, you can use transfer letters to add information. You simply position each letter or symbol over the appropriate spot and rub firmly.

Legibility Important

Whatever the subject matter of a visual, it should be large enough for everyone to see, once projected. If any member of an audience can't see, the visual is absolutely worthless to him. And if the viewers have to strain to see, you will produce irritation instead of communication. Write, print and type large and legibly on every original. Letters should be at least ¼ inch high. A rough rule of thumb: if the printed original can be read at 10 feet, the transparency should project well.

Although both horizontal and vertical formats can be used, horizontal generally is preferred. Avoid putting too much information on a single transparency. Simplicity is a key to the impact of a visual.

A small group of trainees deliberate in a problem solving session.

available through the Government Printing Office and commercial specialists in the production of training materials.

Fire Training Library

A technical Fire Training Library has been established and is continually being supplemented with the results of research, copies of national course books, and other material in the fire and aviation fields. A training film library is also maintained and field units may borrow the films if they are not available locally.

The Center is presently working with Research to include sources of fire training materials in a forthcoming data retrieval system which will be centrally located and accessible to all land management agencies.

National Fire Training Center p. 8

level training is concerned, the Center can probably best provide assistance and dollar savings to the field by producing training aids and tools in the various subject areas. These tools are prepared on a cooperative basis with other agencies by knowledgeable people from the field. A series of training tests is being produced. The series consists of instructor lesson plans, training aids, and reference material lists. These texts are usually in modular form. The preparation work has been completed for the field unit manager and he need only select the training package or the part of it that he needs and assign instructors.

Some examples of these texts are:

● Sector Boss Training.
● Water in Fire Control.
● Firefighter Basic Training.

Slide-tape programs in various subject areas and usable at the field level are also being produced. The volume of material available has made it impractical to supply the various agencies from a central point and material is now made

In a simulated television interview, a trainee undergoes some questioning about activities on his home forest by the reporter.

The Center's modern closed circuit television system is being improved continually and has seen use in numerous training sessions for critique of instructors and recording for future use material presented by subject area specialists.

Efforts are continuing with the various land management agencies in standardization of training hardware, thus making training materials more easily usable on a broad basis.

International Recognition

The Training Center has received international recognition for its efforts in improving fire management training and has received requests for assistance in training materials and Training Center design from the Governments of Chile, Surinam, Canada, Australia and France.

Trainees at the Center have been able to broaden their outlook through personal visits with trainees and instructors from Canada, Mexico and Australia.

Trainees become aware of the complexities in the art of Land Use Planning.

Assistance at Regional Schools

Through coordination by the Washington Office, Division of Fire Management, the Center will assist Regions in their training efforts. Probably the most common example at present is the assistance furnished the Regions by Ralph Johnston, Helicopter Specialist, presently stationed at the Training Center. Ralph spends several months a year assisting Regions through inspection of helicopter-oriented air activities, training of Helitack Crews and Heliport Managers and filling working assignments on project fire situations.

Testing New Training Equipment

As a result of its participation in the evaluation of fire simulators, the Center now uses the compact fire simulator for this type of training.

The wealth of hardware becoming available in the training field makes it difficult for the field unit manager to evaluate and select equipment which best suits his needs. The training Center has evaluated some of these items, such as a cartridge-fed 8mm movie projector, slide-tape equipment and closed circuit television produced by several manufacturers.

Instructor and class listen intently as a trainee makes a point in a fuels management class.

An overhead projector transparency can contain printed information, pie charts, or practically any other type of graphic data that the user can prepare himself.

Visuals also should be as graphic as possible. A graph or chart or simple drawing will have more impact on the audience than a simple word statement that covers the same ground.

Be Thrifty

One visualizes a presentation because this can enhance communications and foster retention of what is communicated. If information is presented only orally, most of it gradually seeps out of memory. But if the same information is presented with visual support, retention is increased substantially—a vital factor in any training situation.

At the same time, one can overvisualize. Some speakers use far too many visuals in a presentation, and they thus become subject to the law of diminishing returns. If a person indiscriminately shovels trans-

parencies into a projector stage, he very probably will turn his audience off.

Overhead projector transparencies should supplement a presentation, not dominate it. It is important that you are thrifty with your visuals; use only as many as are necessary.

The best way to decide on what visuals to use is to determine exactly what you want your listeners to learn. Make an outline of your presentation, determine the highlights of the outline—those points which are most important—and make visuals to illustrate these points. At the end of the presentation, project a visual which summarizes the same major points. Review is a fundamental teaching step.

Using 35mm Slides

In certain training situations, it is

preferable to show actual photographs of a subject rather than line drawings or abstract representations. Perhaps the trainee must learn how to perform a certain procedure or repair a certain component, and it is important that he sees a realistic presentation of each step he must take.

In such cases, the most simple audio-visual tool available is a 35mm slide projector. However, while the projector is relatively easy to use, producing appropriate visuals is a lot more difficult than creating overhead projector transparencies. Unless you have a source of prepared slides, you must obtain a camera and learn how to use it properly.

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Audio-Visual Programs, p. 26

Meeting Room Layout

The ideal meeting room doesn't really exist. If it can handle 500 persons, it won't be much good for 10. Generally, you must make the best use of available facilities, and that means setting up the room for optimal efficiency.

Try to choose a room appropriate to the size of the group; not too cramped, but not too large. Be sure it is roomy enough to accommodate a projector and screen, as well as any props that may be necessary.

Determine Objectives

Before you take a picture or write a script, you must determine what should be explained to get the job done—to bring the trainee to a level of skill and knowledge that you regard as satisfactory.

Sit down with a pencil and paper and, in one clear sentence, answer this question: *Exactly what is it that you will want your trainee to do after he is trained in the job or procedure that you are dealing with?*

Second, answer this question: *How well must the trainee be able to do the job or procedure, and what standards will be used to judge?*

Answer this too, in one clear sentence. Afterwards, determine what equipment the trainee will need to do the task.

Perhaps you will find it difficult to sit down and express your objective in 2 clear statements. Don't let that stop you. By clarifying your thinking in writing, you have taken a crucial step in the creation of a coherent training program. If your thinking is not crystallized at this stage, your instruction will be fuzzy and the program will reflect this, resulting in a lot of wasted time.

The next step is to break the task down into small steps, in sequence from beginning to end, just the way the trainee should learn them. As you do so, be thinking about how well he will have to perform, and
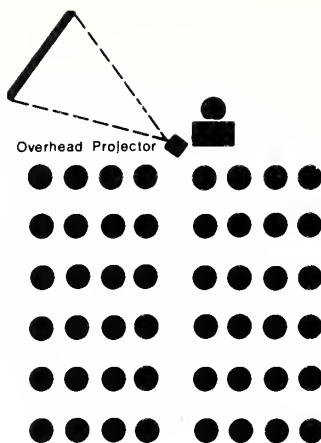
The projector and screen are situated to allow all members of the audience an unobstructed view.

what equipment or tools he will need. You might use the following format as a guide:

"For the trainee to . . . (here, write your answer to the first question about objectives) . . . he must first . . . (write the first small step) . . ."

Be sure to then list the steps logically and sequentially. When you have completed this, you are ready to write the script. But exactly how you will put it all together depends completely on the training situation you will face. Will you be working with a few people or a roomful? Will you be teaching procedures and have the trainees take notes, or will they be learning a task and have the opportunity to actually perform operations as you deal with each step? (This latter approach, see-hear-do, is the most effective. The more senses you appeal to, and the more actively involved the student, the more effective the instruction.) Or will the trainee be working by himself in a self-instruction situation?

Self-instruction

Your trainees may be scattered over a wide region. Or, individual trainees may be coming on board at different times. These and other realities may make group training programs difficult, expensive or plain impossible.

The solution to these problems is self-instruction. Create a program that has all the necessary elements for trainee to teach *himself* a skill or procedure.

Assuming this is the case, let us resume the production of our 35mm slide training program, which will now include a tape-recorded script. Having spelled out the steps in the learning process, you then proceed to write the script. You begin by telling the learner what all these steps will accomplish for him, and why it is important for him to learn them. During the actual learning stages, offer an occasional compliment to the trainee for the progress he is making; provide encouragement when you are covering the steps that could be troublesome. As you build the script, keep in mind these points:

● Compliment the trainee by not talking down to him. Clear pictures often need only a brief explanation.

● Pause at logical intervals to allow thinking time.

● Talk in terms of ideas, rather than formal sentences. Remember, this is conversational English, not written English.

● Detail your picture descriptions in your script to avoid missing important points.

● Shorten your script when the picture explains the point thoroughly enough.

● Direct trainees clearly. Start instructions with specific words like "compare," "loosen," "push," "touch," "move"—action words which cannot be misunderstood.

Once you feel your script is set, test it on a collegue who is not particularly close to your subject. See if he grasps the ideas you are trying to convey.

The Photographs

The individual learning steps you listed prior to preparing a script now can be used to guide your photography. In fact, taking pictures in the same sequence as indicated by the steps assures that you will maintain visual continuity throughout the program.
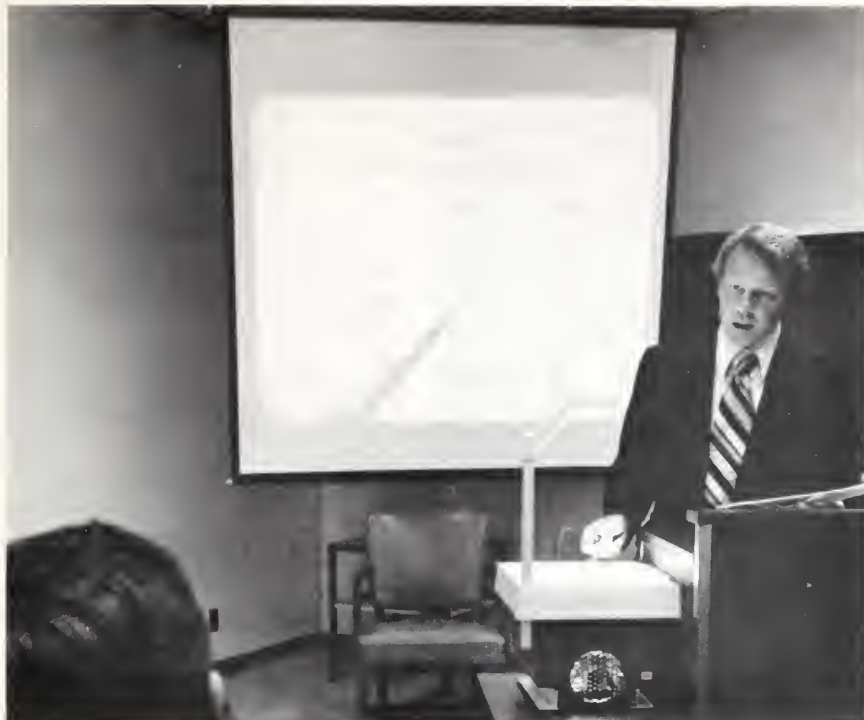
The presenter remains "in the picture" when he uses the overhead projector for visual aids. He can maintain eye contact with his audience at all times, and he can direct their attention from himself to the screen with a flick of the on/off switch.

Here are a few picture-taking tips: Plan an overall shot to begin each new set of steps. This lets the trainee know where you are or how big something is. Then, use as many closeups as possible so that the learner becomes as intimately involved with the subject as possible.

Take both cover shots and closeups from the same direction. Changing directions can cause confusion regarding the location of the subject.

Use short titles liberally: bright colored cardboard arrows on "live" subjects for emphasis; bold lines on diagrams and schematics for viewability; contrasting color lines for emphasis.

Follow the picture descriptions you detailed in your script. Make sure the emphasis is where it is supposed to be; that the parts being explained are visually apparent.

With a typed script and processed slides, you have the elements of a self-instruction program.

Delivery Systems

When properly merged, a slide/tape configuration can perform a satisfactory job. However, it does have clear drawbacks. Recorded cues can be "dropped" by the playback unit. This means that the entire program loses synchronization between slides and taped script. One missed cue can abort the program, thereby putting a halt to the educational process. It is neither practical nor advisable to expect that the trainee can correct this problem.

Then, too, even a "bug-free" slide/tape program does pose certain restrictions on the user. Programed to move ahead relentlessly at a rate determined by the cues, this type of program does not provide all the options one would expect to find in a true self-instruction format. For example, if the trainee does not clearly understand a step, he probably would want to repeat it; or, he might wish to go back and review an entire section of slides. This could be very difficult to do with the conventional slide/tape combination; it is not advisable. In

fact, it could create more problems.

By any kind of analysis, it becomes apparent that a genuine audio-visual self-instruction program should be free of these problems, if at all possible.

The system should be easy to operate and free of synchronization hazards. It should permit the trainee to move at his own pace, rather than at a pre-determined rate. It also should permit the user to repeat the narration for a particular slide as often as desired, and to move forward or backward in the program at will. In other words, it should raise no artificial barriers to the user's ability to teach himself.

One device that satisfies these requirements is the 3M Sound-On-Slide System. It eliminates the basic problem of a two-media system by doing away with the tape recorder. Instead, a slide's sound tract is merged with the slide in a unique way. Each slide is mounted on a small plastic frame, and a re-recordable audio disc is placed around it.

Trays of these frames are loaded into a projector-recorder, or playback unit, and the sound track for a slide is automatically played as the picture is projected. Remove a slide and its sound track moves with it. Change the order of slides, and the sound track is changed at the same time. Re-record simply by selecting the appropriate slide and pushing the record button.

Synchronization problems no longer exist. If a trainee wishes to repeat the sound for a slide, he pushes the "instant replay" button. Or, he can move to any part of a program, without worrying about rewinding the tape or being concerned about getting "out of sync."

Thus, without investing in ultra-sophisticated equipment—and without being extensively trained—you can create your own audio-visual programs. The formats can be as varied as your needs: a simple "electric chalkboard" for group instruction, or systems for individualized instruction. ⚠

Basic Concepts of Simulation

Doug Baker

Simulation has become a major tool for training and testing fire-fighters. As with all tools, some basic concepts of preparation and use have been developed which greatly enhance their effectiveness. No one person or organization has been responsible for the concepts now in use, since many people have contributed their efforts and knowledge to this training procedure.

History

Simulation is not a new concept. During the medieval period the use of swords, clubs, lances, and other weapons was a necessary skill for the warrior class. Since practicing with these weapons in battle could be dangerous, the warriors practiced under controlled conditions with blunted weapons. This was simulation.

Those of us who have learned the military approach to using a rifle are aware that "dry runs" are a form of simulation. I might mention that all simulation does not involve dangerous skills; for example, little girls playing with dolls are also simulating the care of babies.

The history of simulation for fire fighting is much shorter. Simulation for fires can be broken down into two distinct categories: field and classroom. Field simulation includes such practices as time trials for laying and connecting hose, setting up ladder equipment, timing runs to various parts of the de-

Douglas H. Baker is Fire Management Specialist, Division of Cooperative Forest Fire Control, USDA Forest Service, Washington, D.C. This article is excerpted from a talk he gave at the March 1974 46th Annual Fire Department Instructors Conference, Memphis, Tenn.

partmental jurisdiction, and many other common, practical training efforts in which all fire agencies engage.

Classroom simulation—using sand tables, mock-ups, or projection equipment—is of more recent origin. I'd like to be specific about the kind of simulation we are discussing here—simulation using projection equipment in a classroom. To my knowledge, this kind of simulation has developed since 1950.

Many people have been involved in the development of this simulation—the machinery, the training procedures, and the operational concepts. The U.S. Forest Service played a major role, beginning with forest fire training, and now extending to land management planning and recreational forecasts. Many state fire organizations have developed excellent simulators and training programs and the use of simulation is being adapted to structural fire training.

Specific examples are Iowa's Fire Service Extension, New Jersey's Fire College, and Delaware's Fire Service Training, among others. Many of these simulator programs involve combinations of wild and structural fire control applications.

The Simulator Machinery

One basic requirement for good simulation has always been to "practice in a situation which is as close to real as is practicable."

Machinery used for the simulation should not intrude into the minds of the trainees because a "bubble" of concentration is required. The easiest place to obtain this "bubble" is in a classroom which excludes the machinery and its operators. This is important and has been a prime consideration in the design of most simulators now in use.

Of considerably less importance is the actual machinery used to create the illusion of active fire and the response activity taken by the trainees. In most cases, the illusion is created by casting a scene on a screen in a darkened room, and superimposing the elements of fire, smoke and action. This can be done by using either overhead or slide projectors, or a combination, and interrupting the light beams with animated flames, smoke aircraft, etc.

Plans are available for several designs of portable simulators, and a commercial model is available through your State Forester or the U.S. Forest Service. There are simulators with front screen projection, others with rear screen projection, and some can be constructed for as little as $1,000.

Another part of the machinery is the audio system, which should include the normal sounds heard in a fire situation, and a reasonable facsimile of the communications the trainee will be most likely to use. Plans for these are also available, and a commercial package can be purchased.

The Simulation Program

To me, simulation has only two practical purposes. The first is "examining a person for qualities needed to do the job he is assigned on a fire." There appears to be a direct correlation between the ability to respond to an emergency in a simulated problem situation and in an actual emergency. The person who responds well in one will usually respond equally well in the other, and the one who fails to solve the simulated problem will be likely to fall apart in a crisis. This is a valid use of simulation, but it should be done sparingly and with a planned

response well mapped out be-forehand.

The second purpose is the one I prefer. This purpose of simulation is its use as a testing device during training programs. The simulator exercise should be a part of the training package, and "should test reactions to information which has been offered during the training." Each classroom session should present information which can be included later in a simulation exercise. The simulator then becomes the feedback loop to determine whether material presented in class is understood well enough to use in the field. This use of simulation requires strict adherence to a training program which has five key elements:

- An objective.
- Well-defined subject matter.
- A training period to present the subject matter.
- A test by simulation.
- A critique period to examine results.

Let's take these 5 elements, one by one, and expand them a little to see why they should be considered keys to the use of a simulator.

Trainees intent on solving simulated fire exercise.

The Objective

An objective may be defined as the result your trainees may expect from your presentation. Note that the emphasis should be on what the trainee can expect rather than on what you, a teacher, expect.

Too many objectives are expressed as the result desired by the teacher. When you begin to teach a class in fire behavior, you should tell the trainees:

- What you are going to teach.
- How you are going to teach it.
- What you will expect them to be able to answer in a test.
- How the test will be administered and graded.

There should be no mystery involved. After all, the trainees' only purpose in attending your class is to find out what you know that can be of value to them.

Defining the objective of any pre-

sentation is probably the most difficult and time-consuming task of the presentation. Unless the objective is clearly defined and kept in the foreground during preparation, the training project itself could well fail.

Well-Defined Subject Matter

Once you have decided what your trainees should know as a result of your class, examine the subject you are teaching. If you are teaching fire behavior, you are immediately aware that you have several distinctly separate subjects. For instance, you have fire behavior in an unenclosed area (brush fires), you have fire behavior in an enclosed single room up to flashover, and post flashover. You have smoldering fire behavior and fire behavior when the room is opened up. You have single room fire behavior compared to multiple room involvement, and so on. The student

will expect different information in each case. Therefore, break fire behavior into its component problems and teach each part individually.

A major error in training is the failure to analyze the component subject matters involved in a larger training need. Define the subject matter, set an objective for your trainees' needs for each class taught, and develop a plan for the teaching which presents your information to the student in a manner which he can understand.

The Training Period

Once you have done the planning, you should take the necessary 5, 10, 30 or 90 minutes to present your information to the trainee.

Not all subjects take 30 minutes, some take 7. When you're through,

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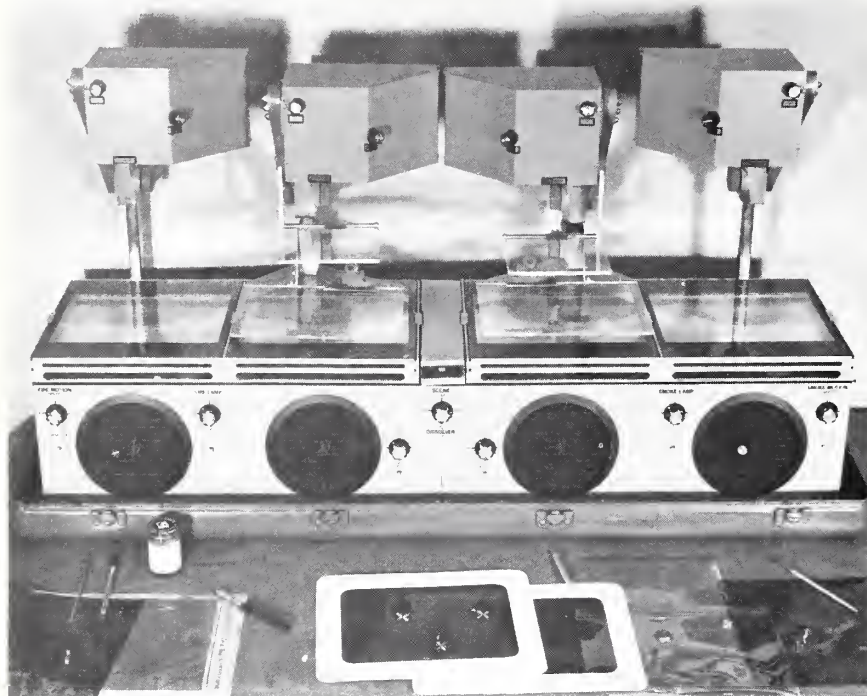
Small portable simulator

and you are satisfied your objective is met, stop. Don't pour in unnecessary information.

Test by Simulation

After you are satisfied that you have presented your information to your student and that he has had opportunity to know what you are trying to get across, test him.

This is where simulation comes in. You may have presented the proper approach to laying hose in a gasoline storage tank farm, with a hospital on the north side, an old people's home on the south side, an elementary school on the east, and an institution for the criminally insane on the west side, but you dare not set a fire there to test your student's responses.

Use the simulator as the test vehicle. If the atmosphere of the test area is kept intact, the trainee will come as close to "living" the prob-

lem as he can without the tank farm actually blazing.

One word of caution. When you design the problem, be sure the inputs from the training team are programed and are relevant to the training needs. Do not let a battle of wits develop around "incidental" occurrences—like a 707 jet crashing into the farm. This is a serious business. The test should present the situations you believe could make a difference in the decision-making process of the student and should stop there. Don't try to embarrass the student and don't present situations which would require information from the student that has not been presented to him in his training.

The Critique Period

This is probably the most valuable part of the use of simulation. The objective of the course should

be exposed to view in the critique room. The objectives of each of the training sessions should also be exposed. The simulation exercise was developed around these objectives, and all inputs from the simulator testing team were developed around these objectives. Further, every response made by the trainee was evaluated during the simulation exercise by an independent critique team. Therefore, the critique becomes an evaluation of how the trainee responded to each of the elements he was taught in the classroom.

Weak points should be examined from two sides: the effectiveness of the teaching and the ability of the student. Perhaps one needs adjusting, perhaps both, perhaps neither. The point is, the critique will reveal to both the teacher and student the effectiveness of the training.

The simulator exercise should be designed to test the capabilities of the person being trained or examined. Many times the training is intended for one of the key support jobs on a fire team. In wild fire suppression, on the overhead team, we include line boss, service chief, safety officer and fire behavior officer. We train each of these talents to do a specific job and, in a simulation exercise, they perform as a team since all are necessary to accomplish the task.

This presents a possible source of error or confusion in the critique phase of simulation. Since the fire boss is usually the central figure in the simulation exercise, critique is usually centered around his actions. We should remember that if the objective is to train the fire behavior officer, the critique team should concentrate on his reactions, his operations, his advice to the other members of the team, and only incidentally on the reactions of the other team members, and on the outcome of fire action. Each simulation exercise should have a specific purpose and should be designed to provide inputs which test his training and capabilities. ⚠

Regions and Experiment Stations, and the Washington Office. Technical specialists from other government agencies are often used. Other professional educators and other specialists are also utilized.

This high powered and varied mix is not present at every session, of course, but it is representative of the different types of instructors which have been used over the years.

Themes Reviewed

During the July meeting, also, an Operations Committee reviews the themes for the next 2 years, and selects a theme for the third year hence. This permits the Training Committee to concentrate on the agenda for the coming winter meeting. Following this meeting the committee chairmen present their plans to the Compact Commissioners for approval. Since the Commission meeting follows the Training Committee meeting by one day, approval and changes are immediate and instructor preparation can proceed. At this point, the training team members can start on their assignments of preparing lesson plans, arranging for other instructors, and gathering films, slide programs, and other training materials.

In the late fall, the Training Committee meets again to review progress, "dry run" lesson plans, and revise and finalize the agenda for the winter meeting.

A paid Executive Secretary takes part in all committee meetings. He handles logistics for the annual training meeting and committee meetings with the cooperation of the committee chairman. Correspondence, invitations, material orders, and preparation of the annual proceedings handbook are among his training obligations. He serves as the link among the various committees, including the Executive Committee.

New Hampshire Site

The annual winter training meeting has been held for many years at Concord, New Hampshire, a location which is relatively central for the Compact members. The motel complex used offers a varied selection of conference and meeting rooms, plus an economical room and meal package for trainees and instructors. Training team members gather a day early to set up equipment and discuss final preparation.

As the training meeting proceeds, the Executive Secretary handles routine logistics, as well as any unforeseen situations that may arise. Training team members assist both each other and outside instructors with training aids. In addition, they act as class monitors.

At the close of the meeting, or soon after, a proceedings handbook of the lesson plans and narratives are presented to the attendees. Since the objectives of the training meeting are twofold—to train trainers as well as train doers—the trainees are now better prepared to spread the training benefits to fire personnel back on the home unit.

Topics Many

Annual winter training session topics have included: basic fire fighting, large fire organization, equipment development, prevention, fire behavior, air operations, fire safety, communications and other pertinent items.

Needs for special training programs have been recognized and 2 summer sessions for pump mechanics have been held in recent years. Training needs of the Commissioners themselves have been met with simulated exercises for the Commissioners concerning what happens at high levels in State government when the mutual aid button is pushed.

As a result of "Compact" training, a large group of fire fighters are better prepared to do their job both at home and in a mutual aid situation. As a result of Compact training, a large group of fire fighters

have developed a working relationship which includes a bond of personal knowledge, respect and trust knowing no State or National boundary lines. As a result of Compact training, seven States and two Provinces present a united front to a common enemy, wildfire. ⚠

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FIRE TRAINING EVENTS 1974–1975

EVENT	LOCATION	DATE
Interagency Fire Training Team	Missoula, Montana	October 7
Regional Fire Training Officers	Marana, Arizona	Oct. 22-25
Advanced Fire Management	Marana, Arizona	Nov. 12-27
Fire Simulator-Instructor Training	Marana, Arizona	Dec. 2-6
Regional Advanced Fire Management	Pacific Northwest Region (R-6)	Dec. 9-13
Fire Safety	Marana, Arizona	Jan. 6-14, 1975
Interagency Fire Training Workshop	Location to be determined	Jan. 20-24
Fire Command	Marana, Arizona	Feb. 4-8
Air Safety	Marana, Arizona	March 3-14
Infrared Interpreters	Boise, Idaho	March 24-28
National Society for Performance and Instruction	Washington, D.C.	March 25-29
American Society for Training and Development	Las Vegas	May 11-15

NATIONAL FIRE TRAINING

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